# >cmfocus

# HARDCORE

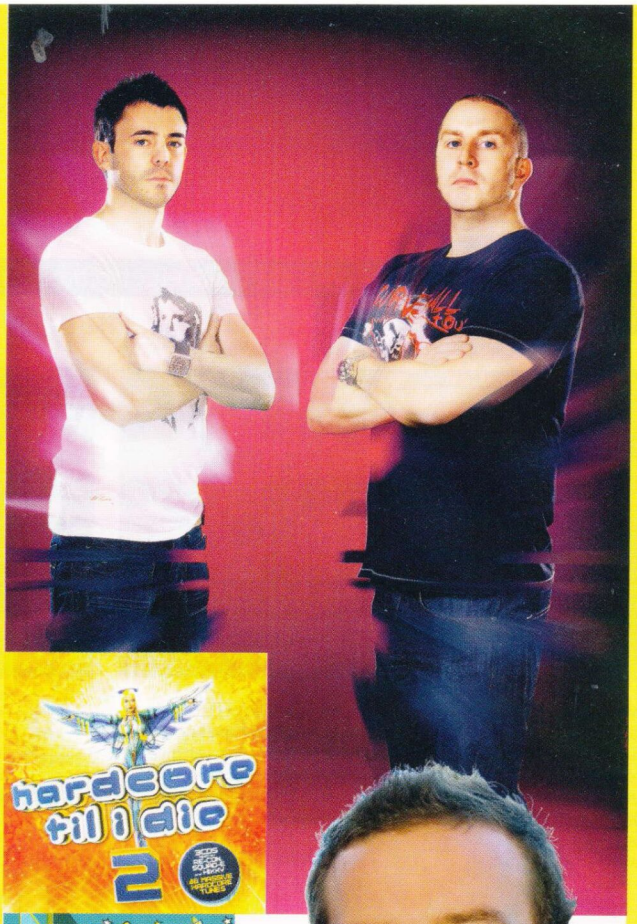
We reveal the production and compsitional techniques involved in getting that authentic hard dance sound...

cm DVD

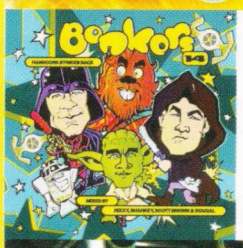
**ON THE DVD**

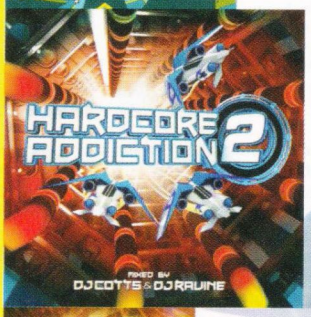
TUTORIAL FILES

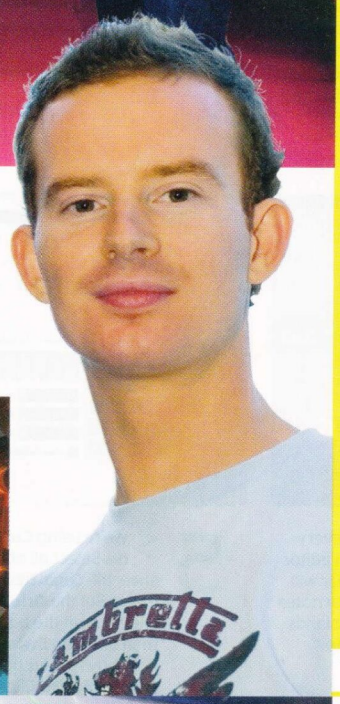
You'll find samples, vocals and stems of our track, and the full mastered mixdown on the disc





**> Hardcore is a word that's been used to describe many kinds of music, from punk to hip-hop, but the type we're going to look at in this month's cm *Focus* is hardcore dance. In the early 90s, the UK's hardcore rave sound comprised a variety of styles, including techno and DnB. As these styles began to evolve and move away from each other stylistically, a genre known as happy hardcore developed.**

Happy hardcore retained the elements that were diminishing in DnB of the time, including uplifting piano breaks, sped-up vocal samples and techno stabs. By 1994, happy hardcore was a quite distinct entity from techno and drum 'n' bass, although it was heavily influenced by the banging kick drums of the former and the cut-up breakbeats of the latter. As the style developed, the influence of the bouncy Scottish techno sound and the 'naive' melodies of Eurodance began to filter through. Eventually, the breakbeats and pitched-up vocals gave way to gabber-esque distorted beats, original vocals and off-beat synth stabs. By 1996, the junglisistic happy hardcore typified by early Kniteforce and Just Another Label releases had all but disappeared, replaced by stompy, vocal-oriented tracks like Force & Styles' *Heart of Gold*.

Following its mid-90s inception, the style has been the subject of evolution rather than revolution, becoming more refined and better produced. Established names like Breeze & Styles (left, top), Hixxy, Scott Brown and Sharkey remained popular while new acts such as CLSM (bottom), K-Complex

"The style has been the subject of evolution rather than revolution"

(middle), Gammer and Re-Con made their presence known. Eventually, compilation series such as *Clubland X-Treme Hardcore* and *Bonkers* took the genre into high-street shops, and hardcore remixes of commercial dance tracks were the norm as the lines between trance, hard house and Eurodance became more blurred.

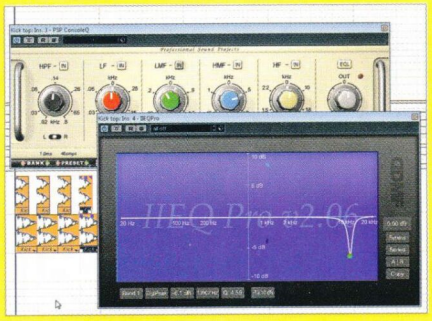
In this tutorial, we'll look not just at production techniques you can use to create a stormin' hardcore anthem, but also musical ideas you can apply to keep up your energy levels. On the disc, you'll find our six-minute hardcore epic, as well as samples, vocals and stems of each mix element. **cm**

## > Step by step Laying down a hardcore beat

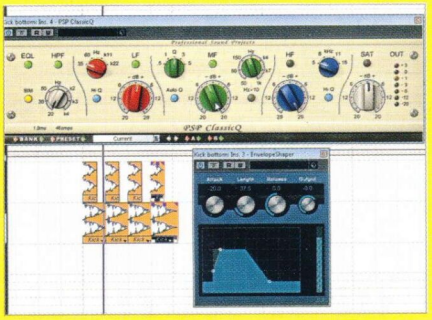
POWER TIP

### >Beat Dis!

No hardcore track is complete without a bangin' beat, and the kick drum is pivotal to this. Samples are your best bet, and in fact most of the drum sounds in this tutorial are from **cm**114's 2007 Hard Dance collection – this is an excellent resource for such sounds. Other sample packs worth investigating include those from Vengeance-Sound and Sounds Of Revolution. If you can find a kick that works for you straight out of the box, then great. However, if you want something original, you could try layering kick drums to, for example, combine the attack of one with the body of another, as we'll be demonstrating here.

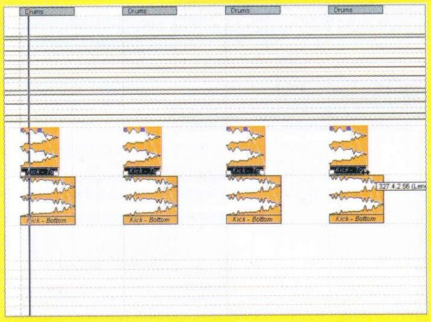


1 > First things first: set your tempo to a slamming 170bpm! We've got two kicks here, on audio tracks, placed on each beat of the bar: **Kick – Top.wav** and **Kick – Bottom.wav**. The first is used for its clicky attack, while the other is low and booming. By using a high-pass filter and 5kHz boost on the former, we can isolate its clicky quality. We also cut an annoying resonance at 10kHz.

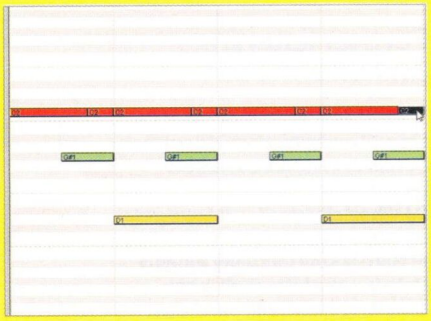


2 > As for the 'bottom' kick drum track, we use Cubase's EnvelopeShaper to suppress the attack (so that it doesn't clash with that of the clicky kick). We also apply EQ, cutting at 250Hz – this is purely to taste, rather than a rule! Now we can easily balance the elements of our kick sound – click and boom – by setting the levels of the two tracks in the mixer.

3 > To make life easier, we create a new Group Track and route both of the kick drum sounds to it, so that we can easily control the overall level of our custom kick drum and apply effects to it: we add EQ (again, there's no special formula) and PSP's MixSaturator2 to overdrive the bass slightly using the **Low** section (this helps make it more audible on smaller speaker systems).

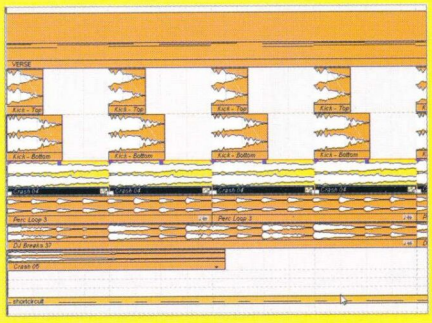


4 > This kick sounds heavy, for sure, but it'll clash with an offbeat bass because it rings out from one hit to the next – we need to cut it off halfway through the beat. Select all the 'bottom' clips, then use the clip handles to adjust their lengths (hold **Ctrl** in Cubase to disable snapping) so that it's approximately half the length of a beat, then use the upper-right fade handles to create a fadeout, to prevent clicking. Do this with the 'top' too, till you get a tight and punchy kick sound.

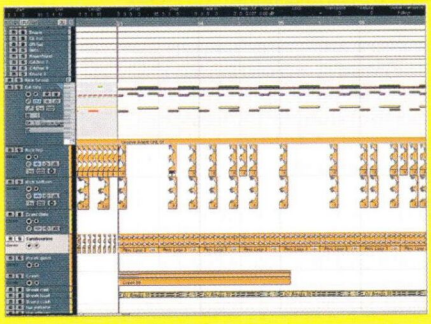


5 > The other percussion is less critical and most of it is more easily dealt with using MIDI – for our sound source, we use Cubase's Groove Agent One (in multiple output mode) loaded with samples. Shown is one bar of our basic beat: the green note on the eighth-note offbeat is an open 909-style hi-hat, and the yellow hit is a snare on beats 2 and 4. The red ride cymbal (mixed quietly) plays on every beat, with an extra 16th-note hit just before the beat, to drive it along.

6 > Note that we can set the length of each note via MIDI (Key Hold mode must be enabled in Groove Agent One), to chop off the snare's tail, and, of course, 'close' the hi-hat. To big up the snare, we slam it through a UAD LA2A compressor, into a UAD Harrison 32C EQ, then into 2CAudio's Aether reverb, using a small, tight reverb with no early reflections and 100ms predelay to add a stereo 'shadow'.



7 > To lend more energy to the beat, a 'tambourine' shaker loop (**Perc Loop 3.wav**) playing 16th-notes is added, as is as an extra hi-hat playing a 't-t-tsch-t-t-tsch' pattern. A breakbeat (**DJ Breaks 37.wav**) plays quietly in the background, with a band-pass filter on the 700-8000Hz range. A sizzling crash/ride sound (**Crash 04.wav**) on every quarter note is used sometimes (eg, chorus) to 'excite' the beat.

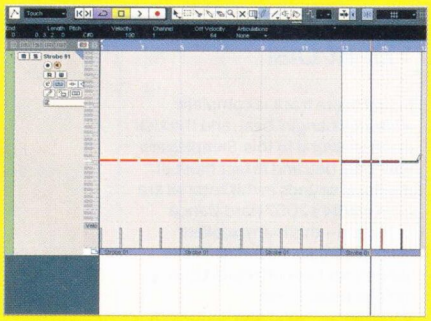


8 > So those are the main components of our beat, though we won't necessarily want them all playing at once for the whole track. And there's no rule that you have to use a four-to-the-floor beat at all times, either – as part of our bridge (at 2:10 in the song), we use a rock-style beat, layered with a different breakbeat (**DJ Breaks 35.wav**). You can hear our drum track on the disc, in the **Stems** folder.

## > Step by step Synthesising an off-beat bass stab

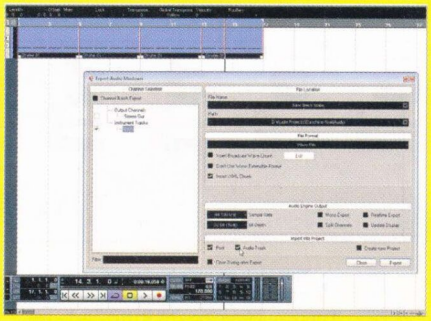
1 > There are many ways to make a hardcore bass stab, but here we'll demonstrate how you can use synthesis and sampling together to create a rock solid custom-made sound. We first load Strobe from FXpansion's DCAM: Synth Squad, although any synth can be used for this. Use a sawtooth oscillator, turn off the filter and increase the **Unison** setting to **6**.

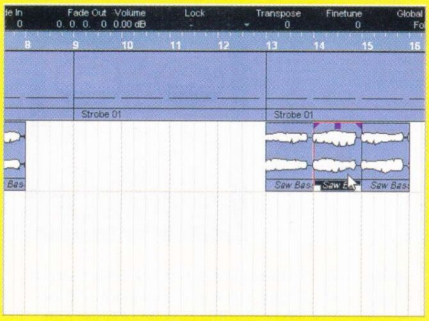
2 > In the TransMod modulation area, set a slot's source to **Poly»Unison2±** and its secondary mod source (below 'via') to **Const»1**. Now drag the (yellow) outer ring of the **Fine** knob to detune the voices until the sound shimmers like a chorus but doesn't sound dissonant. Do the same to the pan slider's 'track' to spread the unison voices across the stereo spectrum.



3 > Program an off-beat bass pattern (an eighth-note between each beat) and note how the sound is inconsistent because the unison voices drift in and out of phase with each note. Put this MIDI clip to one side, and create another clip, with a note (C$^{\sharp}$0) in every bar lasting almost the full duration of the bar – create 16 bars' worth of this.

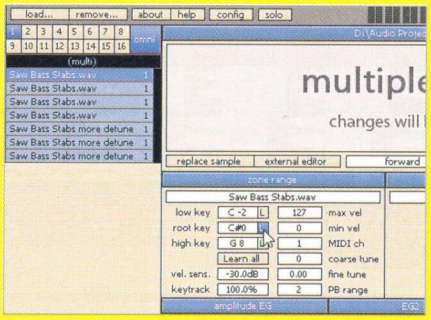
## > Step by step Resampling a synth sound

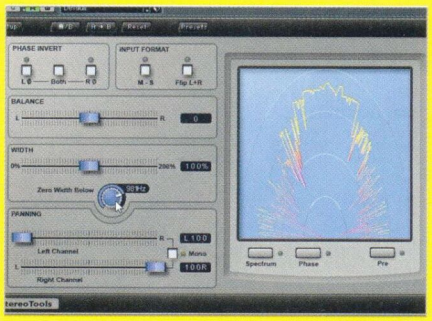





1 > Set the locators to surround the 16 bars of MIDI and choose **File» Export»Audio Mixdown...** Select the bass track in the lefthand panel; put in a sensible **File Name** (ie, **Saw Bass Stabs**); set the **Bit Depth** to 32-bit float for the best quality; and tick the **Pool** and **Audio Track** options. Then click **Export** and hit **OK** when prompted to import the file.

2 > You'll have a new track that's got a clip with detuned saw bass noises in every bar. Enable snapping and cut the clip at every bar (hold **Alt** while using the **Scissors**), then **Solo** the track and delete all notes that don't have a punchy, solid attack. You can even go back into your synth, tweak it to make a variation on the sound, do another render, and so on.




3 > Now we need a sampler – we're using Vember Audio's superb freebie shortcircuit, which is on your **cm** DVD. Drag in all the clips of your best bass notes, **Shift**-select all the layers, and set the **low key** and **high key** to cover the whole keyboard. Put your off-beat bassline MIDI clip onto the shortcircuit track, play it in a loop, solo the track, and click the 'root key' **L** button to set the root.

4 > Click the red switches next to each layer to toggle stabs on and off until you find a combination that works. You can now apply insert effects to your solid, consistent bass noise. As well as EQ and a little saturation, we use Sonalksis' Stereo Tools' **Zero Width Below** function to 'monoise' the bass frequencies (and the mids, in this case), to ensure a consistent balance of kick-to-bass on all systems.

## Further listening and information

***Sing It Louder* by Hard N Soul feat. Donna Grassie & Lisa Abbott**
**bit.ly/86lgR**
**DJ Vibes' classic *Sing It Loud* gets an ultramodern remake courtesy of Hard N Soul (actually Vibes & Hattrixx, the latter being cm contributor and all-round dance production wiz Owen Palmer).**

***Things You Do (Gammer Remix)* by Eclipse**
**bit.ly/1adZj6**
**Gammer's big production makes the most of this uplifting and effortlessly melodic tune.**

**mixes.djfez.com/djs/mrjakk**
**US DJ MrJakk serves up a great selection of tunes in these energy-packed, up-tempo mixes**

**www.crushonhardcore.com**
**The latest *Crush On Hardcore* compilation comprises five CDs' worth of stormin' UK/freeform hardcore, and what's more, it's a free download.**

**www.happyhardcore.com**
**Highlights include streaming radio, an active forum and a store – order a copy of *Hardcore Addiction 2* while you're there!**

**www.kniteforcerevolution.com**
**Take a trip back in time with the Kniteforce archive, with free MP3s and artwork of pretty much everything this classic hardcore ever label released, along with several related imprints.**

# Synthetic to the core

Hardcore synths tend to be of the big and bold variety, with unison detune being ever-popular for creating huge-sounding patches. One thing to think about with your synths is their stereo width – a very wide sound will keep out of the way of the centre-panned instruments, aiding clarity, not to mention making your mix sound bigger. Such wide synths can be created using panning of the unison voices (possible in synths like FXpansion DCAM Synth Squad and NI Massive); using effects like chorus; or double-tracking, where you pan two instances of the same synth (with the same patch) left and right and feed them the same MIDI. This last method needs a synth that's free-running and/or has some sort of 'analogue' behaviour, so that there are differences between the two sides. By comparison, if you use this trick with a sampler, you'll end up with a sound that's louder but still panned dead centre, as the exact same sound will come out of both speakers!

To get a fatter sound with some of our synths, we stack the same MIDI part twice (enabling Cubase's Lanes feature makes this easier to work with) and transpose one of the parts up an octave. We also use the inversions trick explained in the walkthrough below to keep certain synths from wandering too far away from a given note range.

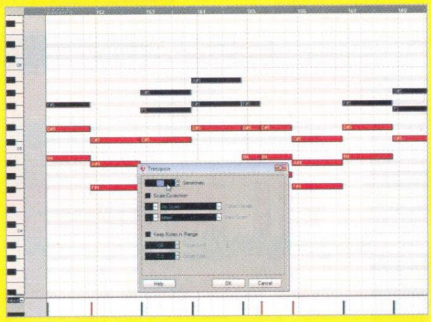
While some synths are fairly restricted in their frequency/note range, others use automation to gradually modulate parameters, giving a sense of progression. For instance, some parts use a DnB-style bass sound made in FXpansion DCAM Synth Squad's Fusor shell, using two instances of Strobe. We use a unison detuned (and panned) 8-voice saw patch for the Reese mid-range, and bind the filter cutoff and resonance to Macro1 for automation during the song. Layered with this is another Strobe pitched an octave down, supplying a straight-up mono sine wave sub bass (remember, it's best to keep bass frequencies in mono). 112dB Redline Reverb is inserted after this, using the built-in EQ to roll the bass off ('verbed bass can be muddy).

Many of our synth sounds come from reFX's excellent Nexus2 instrument (including that hardcore staple the piano), often with its effects turned off and our own plug-ins applied instead. We also use the trancegate in parts (eg, at 1:21 and 2:10) to give a syncopated rhythmic pulse to what would be an otherwise plain lead line.

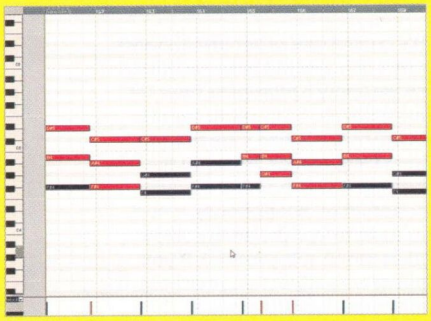
Speaking of which, rhythm is all-important in hardcore, and while the beats and basslines themselves are pretty rigid, funkiness and syncopation in your tunes will make them stand out – hardcore pianos are a prime example! Try alternating between on-beat and off-beat groups of notes, or divide a group of eight notes into a 3-3-2 pattern.

## > Step by step Using inversions in chord sequences

1 > Shown is the chord sequence from our chorus, using only first inversions – ie, basic triads. Sometimes, when the notes are spread out like this, it can be harder to mix, because some notes can clash with other instruments, or the sound will get too high and lose its 'body', or become so low that it gets mushy, etc.



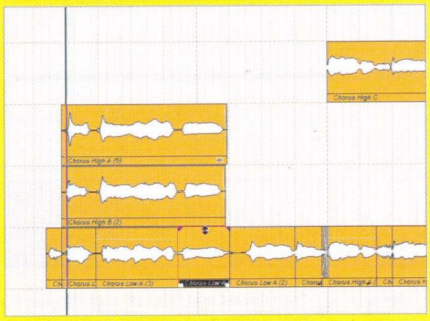
2 > In sonically dense music like hardcore, this can be problematic, and a simple solution is to use inversions – ie, moving some notes up or down an octave (read **bit.ly/mRnsL** for more info). We select all notes above (and including) F5 and use the **MIDI»Transpose** option to shift them **-12** semitones (you can also drag them).



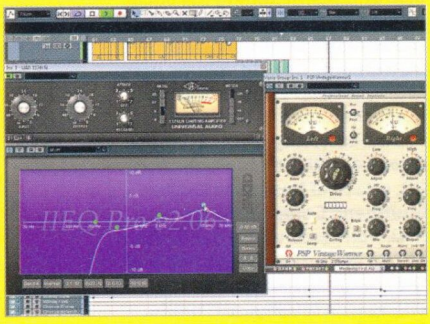
3 > Now we have exactly the same chord sequence, but the resulting notes are all in a much closer range, which smooths the changes and makes the timbre more consistent. Toying with inversions like this can also reveal how notes within chords and, indeed, melodies and basslines might 'flow' from one chord to the next.

## > Step by step Recording and mixing vocals

1 > For a suitably slick vocal, we call on veteran hardcore diva DMO (**myspace.com/dmomusicproductions**). Armed with our rough mix, lyrics and guide melody, she records her vocals with an sE Electronics Z5600 mark 2 Valve mic, sE Reflexion filter and RME Fireface, straight into Logic Pro 7.

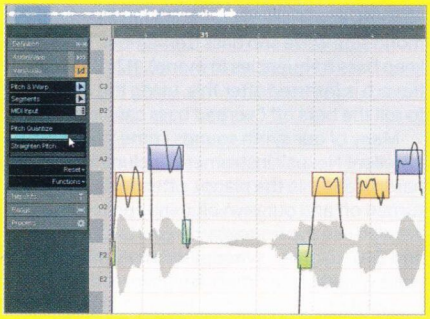


2 > The vocal tracks are delivered in 24-bit AIFF format and pulled into Cubase. She's done multiple takes and harmonies, so we can stack them up (as in the intro), or comp together our favourite bits. We also cut out unwanted breathing noises, and raise the level of any phrases or words that are too quiet.

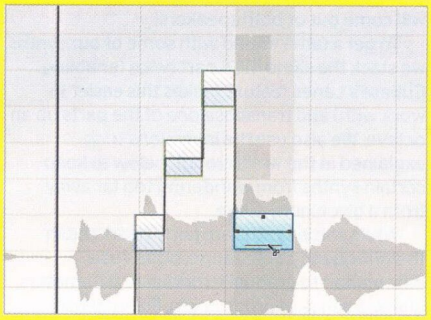


3 > On each individual vocal track, we apply a high-pass filter (about 100Hz) followed by compression. The vocal tracks are all routed to one Group Track, where we slam them into a PSP VintageWarmer2 in multiband mode (multiband compression can help you cheat your way to a decent vocal sound) and shaping EQ.

## > Step by step Vocal editing and processing



1 > Modern hardcore is ultra-precise, so we'll use Cubase's VariAudio to make the vocal 'perfect'. For each part, double-click to open the Sample Editor, then click the **Pitch & Warp** arrow. Press **Ctrl+A** to select all notes, and increase the **Pitch Quantize** slider to centre their pitch. You can drag notes that have snapped to the wrong place, and even change the tune!



2 > For an Auto-Tune style effect, select a note and turn the **Straighten Pitch** slider right up. Using the **Segments** tool, you can cut (hover mouse near bottom of note) or glue (hold **Alt**) the audio. You can then use the **Pitch & Warp** tool to stretch and repitch segments to create totally new melodies, like the ear-catching synthetic vocal hook at 2:53.

3 > The chorus vocals are sent to a group bus feeding an auxiliary channel loaded with a reverb followed by a delay. Band-pass EQ focuses these echoes on the 800-5000Hz range, and a compressor is applied, with its sidechain fed by the chorus group bus – thus the delay ducks when the vocal is happening, and rises in volume to fill the gaps.

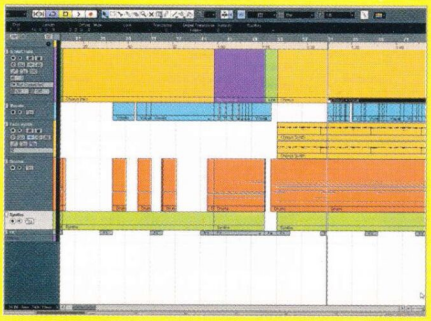
## Hardcore mixdown

**It's crucial that other instruments don't obscure the bass and kick, so we apply a high-pass filter (at least 100Hz) to all other sounds in the mix. It's also wise to keep bass frequencies mono, so the bottom end will sound equally coherent on headphones, a hi-fi, or a mono system (many clubs have mono subwoofers). If you pile stereo effects on your bass, it may even vanish on some systems! If you have trouble hearing the bottom end, try placing a *low-pass* filter at about 100Hz on the master bus.**

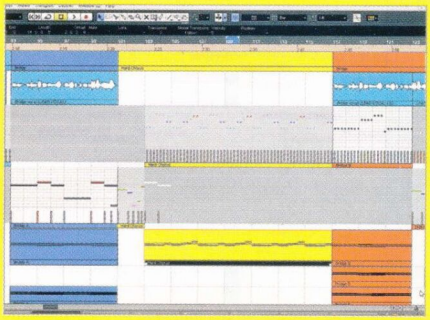
**Aside from the vocal, there's not much need for compression in the mix because the sounds are already consistent in level, especially the samples. To help our kick cut through, though, we use Vengeance Multiband Sidechain on a number of our instruments, including the vocal. With the fastest attack time and the Strength knob at halfway, the instruments duck in volume very briefly on every beat, allowing the kick's attack to be heard.**

**For mastering, we use iZotope Ozone 4, with a treble-boosting EQ, a dash of Harmonic Exciter, Multiband Compressor (in mid-side mode with a gentle ratio of 1.2:1 but a deep threshold) and the Loudness Maximizer engaged in Intelligent II mode. The latter has a very fast release and really slams the track hard – this impairs quality, but it's the price you have to pay if you want your track as loud as commercial ones. Aggressive mastering really brings out the ambience, so go easy on the delay/reverb!**

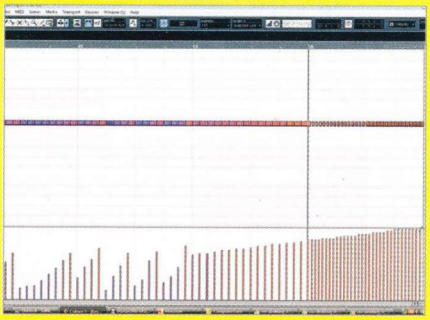
## > Step by step Making the track flow



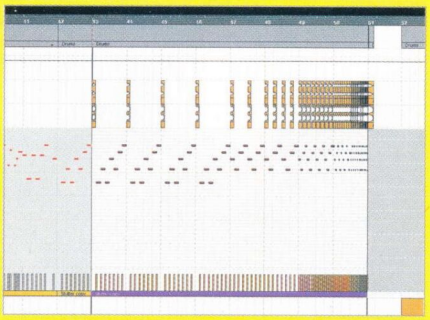
1 > The way you introduce musical ideas throughout your tune has a big effect on their impact. For instance, when the vocal chorus kicks in at 1:24, the listener has already heard the vocal hook in the intro, and they've just had 16 bars of drums and the chorus synth... But they haven't yet heard *both* at once, so when the chorus does hit, it's an "aha!" moment.



2 > Now listen to the part at 2:10 and compare to 2:44 – it's exactly the same vocal and synth melody but the chords and bassline have been changed. It sounds 'the same but different', and puts a fresh twist on an established musical theme. If you've got a cool melody, but it's not quite happening, try changing the chords/bass rather than the melody itself!



3 > Transitions and fills tell your listener that a change is coming, and hardcore makes great use of them. We have a dedicated track for a rushing snare roll (shown) that ushers in many of the changes in the song. Reverse cymbals and whooshing effects are also useful here, the former easily created by reversing your crash cymbal (timestretch it if you need it longer).



4 > In the big build-up at 0:59, we use the tried-and-tested dance music trick of taking a snippet of the tune and repeating it... then taking a snippet of *that* and repeating it... and so on, until the repeated section gets so short that the mix goes into a buzzing meltdown. Then we give the listener a moment's respite with a 'boom' effect and some floaty sweeping sounds before dropping the chorus!